REMARKS

This Response is submitted in reply to a Final Office Action mailed on September 29, 2009. Claims 8 and 10-24 are pending. Claims 19-20 and 23-24 stand rejected under 35 U.S.C. §112, second paragraph. These claims have been amended for clarification purposes. Claims 8 and 10-24 stand rejected under 35 U.S.C. §§102(b) and 103(a). Applicants respectfully disagree with the §102 and §103 rejections for the reasons set forth below. No new material has been added by way of these amendments.

In the Office Action, claims 19-20 and 23-24 are rejected under §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Patent Office asserts that it is not clear whether the volume ratio applies to the polymer content in a swollen or an unswollen state, and asks for clarification or an amendment to clarify this point. In response, Applicants note that this is in the unswollen state, and is the dry volume. Support for this assertion can be found in the Examples. Preparation of three hydrogels according to the present invention recite dry volume ratios of 0.40 ml of the water insoluble polymer PMMA to 1 ml of acrylic acid. See [0060], [0067], and [0073].

Applicants have amended claims 19-20 and 23-24 accordingly to reflect the limitation of dry volume. Applicants also request that these amendments be entered after Final Office Action because they comply with the Examiner's request, are in line with the presumption the Examiner made in the Final Office Action, and also place the application in better condition for appeal because it eliminates an issue on appeal.

In the Office Action, claims 8, 11, 14, and 18 are rejected under §102(b) as anticipated by U.S. 2002/0001571 (hereinafter "Wu"). Applicants reiterate the arguments presented in the Response dated June 22, 2009, and offer the following further analysis. Claims 8 and 14 contain in relevant part the claim aspect of a stimuli responsive hydrogel that is comprised of a stimuli-responsive polymer and a water-insoluble polymer. The other claim aspects have been discussed in the previous Response, but Applicants assert that Wu does not even meet this simple combination of two materials as part of the hydrogel. The claim language is clear – the hydrogel includes these two polymers. In contrast, Wu does not teach the two polymers as included within the hydrogel. Instead, Wu teaches that the stimuli-responsive particles form a hydrogel

and are separate from the water-insoluble membrane. See, for example, Wu [0012]. The hydrogel and the water-insoluble membrane are separate and distinct from each other in Wu, whereas the claim requires the hydrogel comprise both the stimuli responsive polymer and the water-insoluble polymer. For this reason, Applicants assert that Wu does not meet the language of the claim and therefore the rejection based on Wu is improper and should be withdrawn.

In the Office Action, claims 8, 11, 14, 16, 18 and 23-24 are rejected under §102(b) as being anticipated by U.S. 2003/0170308 (hereinafter "Cleary"). Applicants reiterate the arguments presented in the Response dated June 22, 2009, and offer the following further analysis. Specifically, the independent claims each require that the "water-insoluble polymer is a polymer without a cross-linking point." The most relevant material in Cleary, specifically named "The Hydrophobic Polymer," is described as being cross-linked. See Cleary [0059]. Because this does not meet the limitations of the claim, the Patent Office has relied on the plasticizer present in Cleary to meet the limitations of the water-insoluble polymer with a cross-linking point. To support the position that the plasticizer is not cross-linked, the Patent Office has cited to [0061] discussing styrene, α-methyl styrene and vinyl toluene, and to Example 1, with a styrene plasticizer of 29.12 wt%. Because typical polystyrene is linear, the Patent Office asserts that these polystyrene plasticizers are not cross-linked.

Applicants respectfully disagree and assert that the Patent Office has taken these elements from Cleary out of context. Specifically, in the Examples, "styrene plasticizer" is not polystyrene, but is actually defined by Cleary as styrene-isoprene copolymer. See Cleary [0176]. Similarly, in [0061], styrene and its related compounds are not exclusively polystyrene-type polymers, but are in fact part of block copolymers, e.g. AB, ABA, $(AB)_x$ block copolymers, where A is the styrene and B is butadiene and isoprene. See Cleary [0061]. In each of these disclosures, the diene (either butadiene or isoprene) after polymerization with styrene will leave a olefinic double bond that would serve as a **cross-linking point** in either block copolymer reaction, or later in the polymerization of the stimuli responsive polymer. For that reason, the plasticizer cannot serve as the water-insoluble polymer without a cross-linking point, as is required by each of the independent claims. Therefore, the rejection based on Cleary is improper and should be withdrawn.

In the Office Action, claims 10, 15, 17, and 19-22 are rejected under §102(b) as anticipated by Cleary with evidence from Kraton Labels (2009.) Applicants still question the evidentiary value of a 2009 label selectively chosen from a website as representing proof of the contents and characteristics of a commercial product from 7 years prior. None of the compounds cited by trade name in Cleary corresponds to the "High diblock Kraton D SIS polymer" chosen by the Patent Office. Nonetheless, Applicants respectfully note that the evidence from the Patent Office reinforces the Applicants arguments made above. SIS stands for the triblock copolymer styrene-isoprene-styrene. Isoprene is a diolefin, and when the olefin is polymerized, a carbon-carbon double bond remains that will serve as a cross-linking point. Therefore, this description by the Kraton Labs also defeats the Patent Office's position that polystyrene is present in the description of Cleary as a polymer without a cross-linking point.

In the Office Action, the Patent Office rejects claims 8 and 10-24 under §103(a) as being unpatentable over U.S. Patent 6,331,578 (hereinafter "Turner") as a single reference. In the rejection, the Patent Office relies on a single statement in Turner discussing semi-interpenetrating networks where one or more of the polymer components remains linear, and therefore that one of ordinary skill in the art would recognize that this disclosure would be used to prepare those networks. Applicants respectfully disagree and assert that Turner neither makes the claimed invention obvious nor provides an enabling disclosure for the proposed conclusion.

The entirety of Turner teaches crosslinking as applied to a very specific preparation of IPNs. The disclosure in Turner attempts to overcome problems associated with preparing IPNs of bicontinuous hydrophobic/hydrophyllic IPN membranes having a uniform composition. To do so, the IPNs are created by mixing solutions of two components and a crosslinker on a surface that minimizes surface segregation of the incompatible components, and effecting polymerization of the components in the presence of the crosslinker. In every aspect of the invention in the Summary in Turner, polymerization and crosslinking take place in the IPN. See col. 4. ln. 64, col. 5, lns. 2, 26, 31, 52-53, 56; col. 6, lns. 11, 14, 17. In the Detailed Disclosure in Turner, the specific disclosure of the hydrophobic networks gives very thorough details of the crosslinking of the hydrophobic polymer network. See col. 9, ln. 49 to col. 11 ln. 10. ("Suitable crosslinking agents for the hydrophobic material..." "Molecular weight between crosslinks (M_c) of the hydrophobic polymer network..." "Control of M_c of the [hydrophobic network]..") The

very clear teaching of Turner is that crosslinking is required to control the nature of the IPNs created in it.

In contrast, other than the single statement cited by the Patent Office, nothing within Turner teaches or suggests that the IPNs of Turner would or should be created without crosslinking. Furthermore, Turner goes to great details to describe how an IPN of bicontinuous hydrophobic/hydrophilic material can be made and controlled. That control is with crosslinking of the components when creating the IPN. Nothing in Turner enables one of ordinary skill to make IPNs without crosslinking and the clear disclosure in Turner suggests just the opposite. In order to overcome the challenge of creating a bicontinuous hydrophobic/hydrophilic IPN, crosslinking of the polymers under proper chemical constraints must be achieved. Turner provides no teaching to the contrary and therefore fails to make the claimed invention obvious.

For the above reasons, Applicants assert that the claimed invention is novel and non-obvious over the cited references. Applicants respectfully request that the rejections be withdrawn and that the application is in condition for allowance. The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing.

Respectfully submitted,

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